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Authors

Chatman, JA
Greer, LL
Sherman, E
et al.

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Blurred Lines: How the Collectivism Norm Operates Through Perceived Group Diversity to Boost or Harm Group Performance in Himalayan Mountain Climbing

Jennifer A. Chatman
Haas School of Business
University of California, Berkeley
Berkeley, CA 94720-1900
chatman@berkeley.edu

Lindred Greer
Graduate School of Business
Stanford University
Stanford, CA 94305
lgreer@stanford.edu

Eliot Sherman
London Business School
Regent's Park, London, NW1 4SA
esherman@london.edu

Bernadette Doerr
Belmont, CA
bernadette.doerr@gmail.com

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Key Words: Group diversity & performance, collectivism norm

Abstract

We develop a theory explaining how collectivism causes people to blur demographic differences, that is, to see less diversity than actually exists in a group, and reconciling contradictions in how collectivistic norms influence group performance. We draw on the perceived diversity literature, hypothesizing that collectivistic norms cause group members to “blur” demographic differences, resulting in perceptions that group members are more similar than they actually are. Whether this benefits or harms group performance depends on the group’s objective diversity and the relevance of the perceived diversity attribute for accomplishing the task. For conjunctive tasks, the group’s performance is determined by its weakest member, demanding high levels of cohesion. Our theory suggests that collectivism benefits group conjunctive performance when objective national diversity is high by blurring divisive relational differences, but has no effect in groups with low objective national diversity. In contrast, for disjunctive tasks, the group’s performance is determined by its best member. We predict that collectivism harms group disjunctive performance when objective expertness diversity is high by blurring differences in task-relevant expertness, but has no effect in low objective expertness diversity groups. We find support for our theory in two studies, an archival study of 5,214 Himalayan climbing expeditions and a laboratory experiment assessing 366 groups. Our results show that collectivism has benefits and detriments for diverse groups, and that these contradictory effects can be understood by identifying how the collectivistic blurring of perceived group diversity helps or hurts groups based on the type of tasks on which they are working.

Organizational scholars have suggested that a collectivistic orientation enhances group behavior (Triandis and Suh 2002, Oyserman et al. 2002). They have considered this link to be straightforward because the very definition of collectivism, as a norm in which the demands and interests of groups are prioritized above individual needs and desires to achieve collective goals, focuses explicitly on the essential nature and objectives of a group (Wagner 1995). Accordingly, a unifying assumption is that cooperation with relevant group members constitutes a primary feature—perhaps even the defining feature—of collectivism (Mead 1976, Triandis 1990). Research has supported the idea that collectivism benefits groups. People working in groups characterized by a more collectivistic orientation evaluate their ingroup members more favorably (Lee and Ward 1998, Gomez et al. 2000), are less prone to social loafing (Earley 1989), work more effectively with ingroup members than alone or with outgroup members (Earley 1993), prioritize collective goals over individual ones (Triandis 1995, Yamaguchi 1994) and perform better (Jackson et al. 2006).

Examining the empirical research more closely, however, reveals that the seemingly obvious relationship between collectivism and group performance is neither straightforward nor entirely robust. For example, in Wagner's (1995) foundational study, collectivism failed to influence the relationship between a group's sense of responsibility for shared outcomes and members' cooperative behavior. Other research indicates that collectivists may sacrifice achievement in groups to maintain harmonious relationships (Redding 1993, Kim et al. 1994) and that adopting a collectivistic orientation can actually reduce rather than improve a work group's performance. For example, Goncalo and Staw (2006) showed that individualistic groups outperformed collectivistic groups on a creative task, while Ng and Van Dyne (2001) reported that collectivism reduced decision making quality.

Equivocal findings such as these raise the possibility that, despite decades of research, researchers still do not fully understand how collectivism influences group performance (Betancourt and Lopez 1993). We introduce a theoretical framework to explain both why and when collectivism can help or harm a group's ability to achieve its goals. In developing this framework, we highlight that the essence of collectivism is a focus on the group, and thereby a reduced focus on individual differences (Chatman et al. 1998). This reduced perception of differences among members, which we refer to as "blurring," is an

important, nearly definitional component of collectivism and, we argue, can usefully be examined as a central mechanism in how collectivism operates in groups. We identify how, in bringing group members together, collectivism has the potential to help or hinder group performance because of how it influences perceived group diversity, defined as “the degree to which members are aware of one another’s differences, as reflected in their internal mental representations of the unit’s composition” (Shemla et al. 2016). By making salient a view of members as interchangeable exemplars of the group (Chatman et al. 1998), the norm to be collectivistic reduces group members’ perceived diversity—their propensity to view one another as different—and effectively causes them to blur distinctions between them, much like an out-of-focus group photo that makes it difficult to distinguish between individuals. A key implication of blurring is that perceptions of diversity may not correspond to objective measures of diversity as closely as was once thought (Pfeffer 1983); and that, accordingly, perceived diversity may exert a greater influence on group processes and outcomes than does a group’s objective diversity (Shemla et al. 2016).

To understand which group contexts are most influenced either positively or negatively by the collectivistic blurring of a group’s diversity, we build upon Bell’s (2007) suggestion to examine the intersection between tasks—whether they are more conjunctive or disjunctive (LePine et al. 1997, Steiner 1972)—and diversity type—in which we differentiate between relations- and task-oriented diversity (Jackson et al. 1995). Specifically, we propose that, to be successful on conjunctive group tasks (tasks on which all members of the group must complete the task and the group cannot proceed to the next task until each member has done so; Frank and Anderson 1971), groups depend upon a strong sense of solidarity among members (Goncalo et al. 2010, Miller and Komorita 1995). In such settings, cohesion is essential, and perceiving relations-based differences among group members (such as national differences, which are typically less task-relevant) may particularly impede the solidarity needed to perform well (Williams and O’Reilly 1998). Thus, groups working on conjunctive tasks with a high level of objective relations-based diversity may benefit the most from a collectivistic norm, which reduces perceptions of relations-based diversity and enables group solidarity.

In contrast, we propose that group tasks that are disjunctive in nature (where performance is a function of the most competent members of the group—and in which, therefore, individuation and

expertise-identification are critical) are most helped by *maintaining* salient differences among group members, particularly those related to task-oriented diversity, or the distribution of attributes that are relevant to a group's work such as expertness (Bunderson and Sutcliffe 2002). Thus, groups working on disjunctive tasks with a high level of objective task-based diversity may be the most harmed by a collectivistic norm, which reduces perceptions of task-based diversity and thereby blocks a group's ability to identify members' expertness levels (Littlepage 1991).

We conducted two studies to test our theoretical model. Using an archival study of Himalayan mountain-climbing expeditions, we demonstrate that collectivism benefits group performance on a conjunctive task (summitting a mountain, as discussed by Steiner, 1972), and harms group performance on a disjunctive task (recognizing differences in members' expertness to preserve climber safety). We chose the Himalayan expedition context because the different sub-tasks incorporated within it include both conjunctive group tasks, which require cohesion and pro-social helping, as well as disjunctive tasks, which necessitate complex problem solving. Additionally, the outcomes in this setting are objective and immensely consequential, which is often not the case for empirical tests of group processes (Van Dijk et al. 2012). In our second study, a controlled laboratory experiment with 366 three-person groups, we investigate the mechanism explaining our effects shown in Study 1 and show in a causal test of our model that collectivism causes members to blur their perceptions of all forms of group diversity, explaining how the norm operates to benefit or harm group performance. Across both studies, we show that collectivism benefits group conjunctive task performance in groups with high objective levels of nationality diversity and harms group disjunctive task performance in groups with high objective levels of expertness diversity.

We offer three contributions in this paper. First, we address the ongoing debate about the effectiveness of a collectivistic orientation for group outcomes (Goncalo and Staw 2006). We show that the contradictory effects of collectivism on group performance can be reconciled by considering both group composition (the levels of relations- and task-oriented diversity) and the type of task (whether group performance is dependent on group cohesion (conjunctive tasks) or on individual differentiation (disjunctive tasks)). Second, we offer insight into the primary mechanism by which collectivism benefits

performance on conjunctive tasks and harms performance on disjunctive tasks—by blurring members’ perceptions of the group’s diversity. Identifying the key mechanism by which collectivism operates in groups provides insight into the circumstances in which collectivism is likely to help or harm group performance. Third, we extend the growing literature on perceptions of diversity (Homan et al. 2010, Shemla et al. 2016, Phillips et al. 2018) by pinpointing both when objective diversity is perceived in groups, and when such perceptions of diversity help or hurt group performance.

Collectivism in Groups

Scholars have defined collectivism in various ways (Chen et al. 1998) but its core element is “that [collectivistic] groups bind and mutually obligate individuals” (Oyserman et al. 2002, p. 5). Collectivism transcends levels of analysis and is relevant to individuals (Markus and Kitayama 1991), organizations (Hofstede 2001), and nations (Shteynberg et al. 2009). The primary difference between a collectivistic and an individualistic orientation is the extent to which people consider themselves to be defined by the group—that is, interdependent or independent (Morris and Peng 1994).

The question of whether collectivism benefits groups continues to animate and challenge organizational scholars. On the one hand, research has suggested that stronger collectivistic norms should enhance group performance since members value one another more (Lee and Ward 1998, Gomez et al. 2000), work harder together than alone (Earley 1989, 1993), help each other (Flynn et al. 2001), identify more with the group (Chatman et al. 1998), and prioritize group goals (Triandis 1995, Yamaguchi 1994). These positive contributions to group relationships and efforts can translate into higher levels of group performance (Jackson et al. 2006). Other research, however, has raised the possibility that collectivism may actually harm groups by causing them to prioritize social relationships above task performance and achievement (Redding 1993, Kim et al. 1994), and suppressing minority viewpoints and unique information which impairs decision-making quality and creativity (Phillips et al. 2004).

Reconciling these contradictory findings requires identifying the underlying mechanism by which collectivism affects group outcomes. By understanding how collectivism influences groups, we can gain more precise insight into the contexts in which collectivism is likely to have more positive or negative effects on groups. We propose that the key mechanism by which collectivism influences groups is by

causing people to perceive a group as less diverse than it is, which may help the group in certain contexts and hurt it in others.

Collectivism and Perceived Group Diversity

Collectivism at the task-group level is best understood as a social norm (Jetten et al. 2002), or a widely held belief regarding the appropriateness of behaviors such as a concern for maintaining harmony and commitment to shared goals within the group (Cialdini et al. 1990). People follow social norms closely to verify that their behavior and beliefs are appropriately aligned with relevant groups' expectations (Fu et al. 2007). Thus, greater exposure to the norm to be collectivistic should orient group members toward shared goals and predispose them to work towards the group's collective interests (Marcus and Le 2013). Such factors can lead members to see the group as a viable social category with which to identify (Ashforth and Mael, 1989) and, correspondingly, to begin to focus less on each other's individuating attributes and more on their shared similarities. Such tendencies toward depersonalization (Turner, 1982) lead members to see themselves as relatively interchangeable exemplars of the group.

To understand how collectivism depersonalizes members and influences groups, we draw on theories of group diversity (Joshi and Roh 2009; Van Knippenberg et al. 2004). Researchers have been keenly interested in group diversity for over 60 years, but the relationship between objective diversity and group performance remains decidedly ambiguous, with multiple meta-analyses and reviews finding no, or only small and often inconsistent direct effects (Mannix and Neale 2005, Williams and O'Reilly 1998). To address these mixed findings, scholars initially attempted to distinguish between different forms of diversity. For example, Jackson and her colleagues (1995) distinguished between "relations-oriented diversity" and "task-oriented diversity." Relations-oriented diversity, which includes differences in nationality or gender, is relevant to how interpersonal relationships evolve within a work group. When these attributes are salient, people in stereotyped categories such as sex and race are perceived as less effective and prevented from making contributions regardless of their actual qualifications (Fiske and Markus 2012). Such biases and categorizations can harm social cohesion (Jehn et al. 1999), hindering overall group performance (Hornsey and Hogg 2000). In contrast, task-oriented diversity, such as differences in tenure and functional background (Van der Vegt et al. 2005), reflects the distribution of

attributes that are relevant to a group's work. These attributes constitute a group's cognitive resource base and can be associated with elaboration-based processes such as information exchange, information processing, gaining feedback, and integrating information (Joshi and Roh 2009). Some research shows that these differences in education, tenure, and function increase group performance (Jehn et al. 1999) and group creativity (Bell et al. 2011). Critically, however, meta-analyses on the effects of objective diversity on group performance have failed to find robust differences between relations- and task-oriented diversity (Horwitz and Horwitz 2007, Van Dijk et al. 2012).

Recent research suggests that the lack of a consistent relationship between objective diversity and group performance may be due to the fact that diversity is not always perceived in groups (Shemla et al. 2016). Scholars have long observed that objective differences are not always recognized by group members (Zellmer-Bruhn et al. 2008) and do not necessarily reflect differences in perspectives or informational resources (Lawrence 1997). Indeed, the most prominent theories of how diversity influences groups are predicated on members' acknowledging differences—as an antecedent of group processes such as information elaboration (Van Knippenberg et al. 2004) and conflict (Allport 1954). Despite the evidence for the decoupling between objective and perceived diversity, diversity research has predominantly relied on “black-box” perspectives which account only for the actuarial presence of diversity and has failed to find consistent links to group processes and performance (Shemla and Meyer 2012). Therefore, it is increasingly apparent that, to reconcile and advance diversity theory, researchers need to understand when and how objective diversity is perceived in groups (Van Dijk et al. 2012).

Emerging work on perceptions of group diversity builds on social identity theory, which suggests that group members make automatic judgments about the objective level of diversity in their group (Phillips et al. 2018). Initial research suggests that a focus on perceived group diversity may yield more robust theories and consonant findings than have approaches based on objective measures of diversity (Shemla et al. 2016). For example, objective demographic faultlines harmed group outcomes when group diversity perceptions were high, but not when they were low (Homan and Greer 2013, Jehn and Bezrukova 2010). While this line of work is encouraging, one of the key challenges is that perceptions of group diversity are not always accurate and may have little to do with objective levels of group diversity. Other aspects of

group composition (Daniels et al. 2017) as well as the normative context (Chatman et al. 1998) can influence how accurately members perceive their group's objective diversity. If perceptions of diversity can determine group outcomes more reliably than objective measures, the lack of a theoretical framework to understand how group norms and objective diversity levels interact to predict perceived group diversity (and, thereby, group outcomes) is problematic.

We develop a theory to understand how group norms can alter perceptions of diversity in groups and how the relationship between group norms and group composition influences group performance. We draw on social identity theory to advance the argument that, by encouraging a focus on group commonalities and raising the salience of a view of members as interchangeable exemplars of the group, collectivism causes members of diverse groups to be less able to attend to relevant distinctions among them (Leonardelli et al. 2010). This implies that the norm to be collectivistic can reduce or blur the perception of all forms of diversity in objectively diverse groups. When members of a group differ in relations-oriented attributes, collectivism can reduce perceived relations-oriented diversity and its associated social categorizations, biases, and relational conflicts (Pelled et al. 1999). But in groups whose members differ on task-oriented attributes, collectivism also reduces perceived task-oriented group diversity, making it harder for groups to capitalize on unique and essential information for accomplishing their work. We therefore suggest that collectivism leads members to blur attributes on which members differ, even when those differences are important for task success, and that this can explain when collectivism will help or hurt group performance. In sum, we extend emerging research on perceived diversity by offering an explicit theory and empirical test. We define perceived diversity as the blurring of differences among members and examine both how it is influenced by the levels of collectivism and objective diversity in groups as well as how it affects group outcomes depending on the type of task on which the group is working.

The Role of Task Type in Understanding How the Collectivistic Blurring of Perceived Differences Influences Group Performance

In understanding how collectivism causes members to blur different forms of perceived group diversity and how blurring, in turn, influences group performance, we look to research on the types of

tasks on which groups are working. Researchers have shown that group tasks vary significantly in how much and what type of interdependence is needed to achieve success (McGrath et al. 1995, Steiner 1972). Steiner's (1972) distinction between conjunctive versus disjunctive tasks maps well onto the categorization versus elaboration processes that characterize groups that perceive themselves to be relationally- or task-diverse (Van Knippenberg et al. 2004). Steiner (1972) proposed a comprehensive theory of group productivity to explain why groups may not realize their performance potential by focusing on the structure of the task that a group undertakes.

Steiner (1972) identified tasks as *conjunctive* or *disjunctive*. In working on conjunctive tasks, the group's performance is primarily a function of its weakest contributor (Weber and Hertel 2007). In contrast, when working on disjunctive tasks, the contribution of one member can effectively represent the contribution of the group as a whole (Kerr and Bruun 1983). We focus on conjunctive and disjunctive tasks because they offer clearly contrasting forms of group interdependence and they illuminate the potentially opposing effects that perceptions of relations- and task-oriented diversity can activate in groups. Conjunctive tasks require groups to interact to ensure that all members accomplish group goals, as group performance is determined by the worst performing members, who can prevent the entire group from completing the group task (Steiner 1972). As such, conjunctive task performance may be particularly derailed by perceived relational differences in groups, which threaten to undermine the group focus, cohesion, and solidarity (Jehn et al. 1999) that motivates members to assist, improve, and bring along the weakest performers (Miller and Komorita 1995). Accomplishing disjunctive tasks, in contrast, requires that the most expert members have a greater say in the group's approach, as group performance is determined by the best performing group member (Littlepage 1991). A solution is derived by the member(s) with the most expertness and that solution is adopted for the whole group. As such, groups in which members perceive task-oriented differences that promote the individuation and information elaboration needed to identify expert members and give them greater influence in group decisions groups may perform better on disjunctive tasks (Van Knippenberg et al. 2004). Therefore, we suggest that the collectivism norm can improve group performance on conjunctive tasks by reducing members' perception

of the group's relations-oriented diversity, but that it can also harm group performance on disjunctive tasks by reducing members' perception of the group's task-oriented diversity.

Collectivism improves conjunctive task performance in objectively relationally diverse groups. We first propose that emphasizing the collectivism norm will improve conjunctive task performance, but only in groups that have high, but not low, objective relations-oriented diversity. We focus here on objective national diversity, a specific and common relations-oriented diversity attribute. Nationality is a fundamental aspect of a person's identity because it is in force "from birth," is readily detectable, and influences how people interact, share information, and define and solve problems (Gibson and Gibbs 2006). Cultural identity groups share certain worldviews, sociocultural heritages, norms, and values (Pieterse et al. 2013). As such, the *perception* of different nationalities within task groups can be disruptive. When national differences are actively perceived, members are sensitized to differences in eye contact, punctuality, physiological reactions to emotional stimuli, and conversational style, and disagreements about the appropriateness of these behaviors can produce affective conflict and reduce group performance (De Dreu and Weingart 2003).

We suggest that in objectively nationally diverse work groups, collectivism reduces the perception of national diversity, and thereby improves group performance on conjunctive tasks. For tasks requiring a conjunctive orientation, a significant risk is not establishing the cohesion and group motivation needed to ensure that all members are successful and can advance to accomplish the group's goals (Weber and Hertel 2007). Collectivism can be critical for groups with high objective national diversity by blurring the perceptual categories associated with national diversity—perceptual categories the most likely to stand in the way of the needed group cohesion. This is because collectivism can help groups by redirecting perceptual attention from individual social category differences and toward shared common group attributes which can boost shared norm adherence, cooperation, commitment, group cohesion, and identification with superordinate goals (Gong 2006), as well as reduce conflict (De Dreu and Weingart 2003). By focusing on commonalities rather than relations-oriented differences, collectivism can help groups to avoid biases associated with out-group perceptions (Hinsz et al. 1997) and enhance group performance on conjunctive tasks by elevating all members' productivity (Ellemers et al. 2004).

Consistent with this, Ilies and colleagues (2007) found that groups characterized by greater collectivism formed more internal affective linkages. Thus, when collectivism mutes the disruptive effects of relations-oriented diversity, collectivism also enables groups to engage in behaviors that are relevant to accomplishing conjunctive tasks by making salient members' interchangeability, shared interests, and what they can accomplish together (Gaertner et al. 2000, Hornsey and Hogg 2000). For example, members may focus on expanding and sharing resources without distinguishing between members' relations-oriented attributes to increase group success (Galinsky et al. 2005), or, in terms of an example that Steiner (1972) highlights as the prototype of a conjunctive task, more mountain climbers in an expedition may summit the mountain when national diversity is blurred by collectivism.

This is how blurring relational differences in collectivistic, objectively relational diverse groups can foster higher levels of cohesion and solidarity as compared to either homogeneous groups with low or high levels of collectivism or nationally diverse groups with low levels of collectivism (Chatman et al. 1998). This occurs because of a potential contrast effect (Gibson and Gibbs 2006); while stronger collectivism norms are expected to mute (but not completely obscure) objective differences in members' national affiliations, there is likely to be at least some awareness of these differences (Goncalo et al. 2015). The cohesion and solidarity that may exist among members despite their relational differences may register as positive surprise. This contrast effect between what is and what should be may amplify the positive benefits of group cohesion on task performance. In homogenous teams, cohesion is less surprising and a contrast effect is less likely to emerge. Thus, cohesion in these teams does not drive task performance. And in objectively diverse groups that perceive their national differences, conflict is more likely than cohesion (Shemla et al. 2016). Research supporting these notions has shown that not only are diverse and collectivistic groups more cooperative (Flynn et al. 2001) but also that they perform better than do groups that are less diverse and individualistically oriented (Chatman et al. 1998, Goncalo and Staw 2006).

Collectivism harms disjunctive task performance in objectively task-diverse groups. In contrast to the positive impact that the collectivistic blurring of perceived relations-oriented diversity has on conjunctive task performance, we propose that collectivism will harm disjunctive task performance in

groups characterized by more (but not less) objective task diversity. We focus on objective expertness diversity, which reflects the degree to which members have different *levels* of task-relevant knowledge (Bunderson and Sutcliffe 2002), and is distinct from the *type* of expertise (similar to functional differences) (Van der Vegt et al. 2006). The perception of objective expertness diversity is particularly relevant as disjunctive task performance is determined by identifying the single best solution on behalf of the entire group (Steiner 1972). Identifying and choosing a single solution to a complex problem on behalf of a group necessitates an expertness hierarchy within the group, which often includes a heuristic for weighting information and identifying whom should make the final decision on behalf of the group (Keltner et al. 2008).

We predict that collectivism will harm disjunctive task performance in groups with more objective expertness diversity by blurring this potentially valuable form of diversity. By blurring the perception of differences that are relevant to accomplishing disjunctive tasks, collectivism diminishes the elaboration capacity of objective expertness diversity (Gardner 2012). Although having members with more expertness on a complex task provides a way to prioritize information (Greer et al. 2018), benefiting from expertness diversity depends on a group's ability to recognize, incorporate, and weight it accurately (Pieterse et al. 2013). According to the categorization-elaboration model, one of the key antecedents of knowledge elaboration is the belief that other group members are sources of novel and useful information and perspectives (Van Knippenberg et al. 2004). Demography research in the information/decision-making tradition also suggests that perceiving task-oriented diversity, such as expertness, enables groups to air and parse conflicting viewpoints, thereby improving their performance (De Dreu and West 2001). Thus, collectivism is likely to hurt disjunctive task performance by blurring the perceived task-oriented diversity needed to foster the dissent and task conflict required to surface relevant information (Thompson et al. 1996), and weight member's perspectives according to their task knowledge (Molden and Higgins 2005, Wang and Lee 2006). This appears inconsistent with research supporting the benefits of collectivism on group performance (Bell 2007), but it is consistent with the idea that success on creative, complex tasks requires the group to identify divergent knowledge and capitalize upon it—

precisely the kind of activity that blurring obstructs by precluding members from surfacing the unique information that other members actually possess (Phillips et al. 2004).

The blurring of such task differences in groups that are collectivistic and diverse in terms of objective expertness can thereby result in lower levels of information elaboration and expertness identification than is seen in either homogeneous groups (with low or high levels of collectivism) or objectively expertness diverse groups with low levels of collectivism and which do perceive their differences. This occurs because, while stronger collectivism norms are expected to mute (and not completely obscure) objective differences in members' expertness, there is still likely to be at least some awareness of these differences. Because expertness is a source of respect and status in groups (e.g., Bunderson & Sutcliffe 2002), members may want even small differences to be acknowledged. Yet this may be less likely to happen in such groups. Rather, perceptions of similarity may lead members to treat each other's contributions equally, and reduce their willingness to put forth persistent and intense effort toward the task (Lawler 2005), undermining group performance on disjunctive tasks. In contrast, among objectively diverse groups that adopt an individualistic norm, members are most likely to focus on genuine differences in their expertness levels, making it easier to identify important knowledge and improve group decisions, thereby providing the information elaboration and expertness identification needed for disjunctive task performance. For example, Goncalo and Staw (2006) showed that individualistic norms are more beneficial than collectivist norms for tasks requiring a focus on what makes members unique. And, in objectively homogeneous teams, the level of expertness is comparable and so members are likely to treat each other's contributions relatively equally regardless of the presence or absence of a collectivism norm. Therefore, we propose that collectivism harms disjunctive task performance when groups are more (but not less) task diverse, by causing members to blur, or perceive less group diversity.

Model Overview

Our theory explains how collectivism indiscriminately causes group members to blur their own diversity and identifies the task settings in which this blurring of diversity perceptions will help or hurt group performance. Specifically, we argue that collectivism will help performance in more objectively

relations-diverse groups on conjunctive tasks by blurring the perception of relations-oriented group diversity, and it will hurt the performance of more objectively task-diverse groups on disjunctive tasks by blurring the perception of task-oriented group diversity, or more formally,

Hypothesis 1A. *The relationship between collectivism and group conjunctive task performance is moderated by objective relations-oriented group diversity (the group's national diversity), such that collectivism is positively related to the group's conjunctive task performance when objective group relations-oriented diversity is high and is unrelated when objective group relations-oriented diversity is low.*

Hypothesis 1B. *The relationship between collectivism and group disjunctive task performance is moderated by objective task-oriented group diversity (the group's expertness diversity), such that collectivism is negatively related to the group's disjunctive task performance when objective group task-oriented diversity is high and is unrelated when objective group task-oriented diversity is low.*

Hypothesis 2. *Perceived group diversity will mediate between the collectivistic norm and performance in objectively diverse groups, such that collectivism will reduce the perception of diversity in objectively diverse groups, and perceived group diversity will drive the impact of collectivism on group performance. Specifically, perceived group diversity will mediate the relationship between collectivism and (H2A) group conjunctive task performance in groups with high (but not low) objective relations-oriented diversity, and (H2B) group disjunctive task performance in groups with high (but not low) task-oriented diversity.*

OVERVIEW OF STUDIES

We conducted two studies to test our hypotheses. In Study 1, we examined an archival data set of Himalayan mountain-climbing expeditions to test Hypotheses 1A and 1B. We show that collectivism boosts conjunctive task performance in nationally diverse groups but reduces disjunctive task performance in expertness diverse groups. Then, in Study 2, we test Hypothesis 2 by conducting a group experiment identifying blurring as the mechanism that mediates between collectivism and perceived group diversity and explains how collectivism can both help and hurt group performance outcomes.

STUDY 1: METHOD

Data and Sample

The Himalayan mountain range—which stretches across Pakistan, India, Nepal, Tibet, and China—is home to the world's most imposing peaks, including Mt. Everest, the tallest mountain on Earth. This unparalleled concentration of climbing challenges makes the Himalayas the most sought-after destination for accomplished mountaineers. We used the Himalayan Database (Salisbury and Hawley 2004 [2013]), which contains the detailed expedition records of Elizabeth Hawley, who since 1963 has served as the unrivalled chronicler of Himalayan expeditions (Jolly 2010, p. 1). Hawley has interviewed climbers from

nearly all expeditions during the last half-century (Salisbury and Hawley 2004 [2013]). The Himalayan Database contains comprehensive information on 59,975 climbers who attempted Himalayan ascents in 8,184 expeditions between 1950 and 2013. We excluded several types of expeditions and climbers that did not fit with our study design, such as solo and two-climber ascents.¹ Our final sample consisted of 38,818 climbers in 5,214 expeditions.

Dependent Variables

Conjunctive Task Performance: Summiting success. Summiting the targeted peak is a critical performance outcome in mountain-climbing groups; it is the central accomplishment, the ultimate desired end state, and the very basis for the expedition's formation. Consistent with Steiner's (1972) typology of group tasks, summiting is a conjunctive task, which he defined as those in which "each member of a group is required to perform essentially the same function, and everyone's success is determined by the effectiveness with which the least proficient member operates" (p. 17). Steiner (1972, p. 28) cited mountain climbing as the best example of a conjunctive task because of the extent to which the group's overall performance is constrained by the limitations of its weakest member. For example, reaching the summit of a target peak can require capitalizing on a temporary break in the weather, and delays incurred because of a lagging climber can reduce the likelihood of each climber making it to the summit (Krakauer 1997). In this context, developing a level of group solidarity that motivates climbers to stick together and encourage one another to persist can significantly influence summiting success. As Connally (2004, p. 13), states, "little time is saved by letting groups spread out, because slow hikers get even slower, and there's always the danger of serious time loss if a party member goes missing." We constructed a group-level, continuous measure of summiting success by calculating the proportion of climbers in each group who reached the summit of their target mountain ($\bar{x} = 0.32$, $SD = 0.35$).

¹ Given our focus on summiting success, we excluded the 3,651 climbers who elected to only go as far as base camp, verified by climbing permits issued by the Nepalese government which require expeditions to identify in advance each climber who will be ascending above base camp. In addition, we excluded 872 climbers who were registered to attempt a summit but failed to reach base camp (183 expeditions included at least one such climber), leaving us with 55,452 climbers in 7,968 expeditions. Next, we excluded the 10,212 paid support personnel after calculating our control variable measuring climber support, which we describe below. This reduced our sample to 45,240 climbers in 7,962 expeditions (the reduction in number of expeditions at this stage is due to certain expeditions comprising entirely hired personnel such as all-Sherpa teams who were contracted to clear a trail in advance of commercial expeditions). Third, given our focus on group composition and consistent with typical definitions of a group as having three or more members (Kashy and Kenny 2000), we

Disjunctive Task Performance: Climber Safety. Climber safety is another critical outcome for mountain-climbing groups and requires that they vigilantly detect and assessing impending weather conditions, choose the safest route, and constantly re-calibrate risk. To do this, groups must surface and accurately weigh the expertness that is available within the group regarding its approach, particularly with respect to route selection, during each phase of the climb. As one mountain climbing textbook (Connally 2004, p. 15) describes it: “Routefinding may mean choosing from among several options for attaining your objective—a snowfield, a scree slope, or a pitch of technical rock; whether to climb a gully or a ridge; whether to follow a trail or go cross-country. The best route may depend on the season and weather, the condition of your party, the amount of daylight available, the equipment you’re carrying, and the consequences of misjudgment.” Connally (2004, p. 342) stresses the importance of expertness to this process: “Group decisions can easily be inferior to decision making by individuals, particularly in the face of uncertainty and ambiguity. Decisions taken often have more to do with relationships within the group than with objective facts or accurate appraisal of consequences ... you’ll want to learn from others who’ve analyzed the particular hazard and thoughtfully evaluated their personal close calls.” According to Steiner’s model of group task types, climber safety is a disjunctive task: “The success of the group will depend upon which member’s performance is selected to represent the group effort ... One member (or perhaps two or three members who have supplied the same outcome) is given total weight, and others are accorded none” (Steiner 1972, p. 17).

We operationalized climber safety as the avoidance of climber deaths during an expedition. We created a binary variable, assigning a 1 when no climbers died during an expedition and a 0 when at least one climber died during an expedition. Consistent with our focus on the group as the unit of analysis, the

excluded 1,265 climbers who made ascents by themselves or with support personnel but no additional team members. This reduced our sample to 43,975 climbers in 6,697 expeditions. We also excluded 2,412 climbers who ascended in pairs, reducing our sample to 41,563 climbers in 5,491 expeditions. Next, because of the collectivism norm’s centrality to our analysis, we excluded all climbers from countries who are not included in Hofstede’s index (located at <https://geert-hofstede.com/countries.html>) as well as any expeditions that included at least one such climber. This reduced our number of expeditions to 5,244 and our number of climbers to 38,986. Finally, climber age, one of our control variables described below, was missing for 1,190 climbers, or approximately 3% of the remaining sample. These climbers were included in calculations of the control variable for the size of their group, but their age was coded as missing for the calculation of the control variable pertaining to their average expedition age. Age was missing for every climber in 30 expeditions comprising 168 climbers. Since we were unable to calculate an average age for these expeditions, we excluded them from our analysis. (However, we re-ran the analyses described below, assigning the mean group age (37.08 years) to those expeditions that were missing average age, and found no differences in the pattern of results.)

occurrence of a climber death is both a tragedy and an unmistakable indicator of an expedition's failure to maintain climber safety. Fortunately, the vast majority of expeditions avoided experiencing a climber death ($\bar{x} = 0.93$, $SD = 0.25$).

To verify the degree to which summiting represented a more conjunctive group outcome and safety represented a more disjunctive group outcome, we recruited 157 participants on Survey Monkey to engage in a within-subjects experiment. In this experiment, we asked them to rate the degree to which they viewed descriptions of these two tasks as being more conjunctive (performance determined by the worst performing group member) or more disjunctive (performance determined by the best performing group member). We presented participants with the same definitions of conjunctive and disjunctive tasks as we use here, and then asked them to rate both climber safety and summiting in terms of the degree to which they were either conjunctive or disjunctive on a scale of 1 to 7 (7 indicating high agreement). As predicted, a repeated measures analysis showed that summiting was seen as significantly more conjunctive ($\bar{x} = 4.96$, $SD = 1.76$) compared to safety ($\bar{x} = 3.50$, $SD = 1.88$, $F(1, 156) = 35.52$, $p = .000$, $\eta^2 = .20$), and safety was seen as significantly more disjunctive ($\bar{x} = 4.82$, $SD = 1.73$) compared to summiting ($\bar{x} = 3.82$, $SD = 1.98$, $F(1, 156) = 19.92$, $p = .000$, $\eta^2 = .11$).

Independent Variables

Norm to be collectivistic. We measured the extent to which each expedition is characterized as orienting members to a collectivistic norm with Hofstede's Individualism-Collectivism Index (<https://www.hofstede-insights.com/product/compare-countries/>; see also Hofstede 2001). The Index includes scores for 102 countries on a 100-point scale that ranges from 6 (Guatemala) to 91 (U.S.), with higher numbers representing lower collectivism. Hofstede based the Index on surveys of IBM employees in 64 countries, and then refined it through research on different work populations (Hofstede and Spangenberg 1987). Accordingly, we matched each expedition member's country of citizenship to that country's score on Hofstede's Index.² This methodological approach has considerable precedent (Chua et

² Even though there is substantial precedent for assigning country-level Hofstede scores to individuals, some have criticized this practice, noting that within-country variance in behaviors related to dimensions like collectivism can be lost when assessed indirectly (Kirkman et al. 2006). To address this concern, we collected additional data from a sample of Himalayan climbers to examine whether country-level scores reflected individuals' normative orientation with respect to collectivism. The sample consisted of 180 climbers from Himalayan expeditions between 2008 and 2013 (we asked participants to focus on their most recent expedition).

al. 2015, Kalmijn and Tubergen 2010), including being used with Himalayan data specifically (Anicich et al. 2015). Our final sample included climbers from 80 countries, with the largest number of climbers (4,824) hailing from Japan while a single climber represented Bhutan, Morocco, Saudi Arabia, the United Arab Emirates, Tanzania, and Uruguay, respectively. We derived a continuous measure of collectivism for each expedition by averaging the climbers' individualism scores. We then used the REVRS module in STATA to reverse these values so that higher numbers reflect greater collectivism. Next, we re-scaled these values from 0 to 1 by dividing each expedition's collectivism score by 100 ($\bar{x} = 0.30$, $SD = 0.21$) to ensure comparability with our measure of relations-oriented diversity, described below. Finally, we mean-centered this variable in all analyses.

Objective relations-based diversity. Objective national diversity is the extent to which each expedition included members from different nations. We used Blau's (1977) index of heterogeneity, which measures the sum of squares of the proportion of expedition members from each nation: $1 - \sum_{i=1}^N s_i^2$, where s_i is i 's share of nationality in the group and N is the number of nationality categories. For example, an expedition with three climbers from Argentina and one from Norway would have a national diversity score of 0.38. The mean national diversity score across expeditions was 0.17 ($SD = 0.25$), which we mean-centered in all analyses.

Objective task-based diversity. We measured objective task-based diversity by focusing on objective expertness diversity in the teams. We created a variable measuring dispersion in climbers' objective expertness in the Himalayan region within each expedition, which is relevant given the uniquely challenging conditions. We measured individual expertness as the number of times a climber appears in

Participants averaged 40 years old; 14% were female; and they had attempted an average of 1.43 Himalayan climbs. In addition, 44% used oxygen, while 51% participated in a commercial expedition. We asked these climbers to "Please rate each norm on a scale of 1 to 7, with 1 meaning the norm was highly uncharacteristic of your expedition and 7 meaning the norm was highly characteristic of your expedition." These items were: "It was important to climbers that they respected the group's collective decisions;" "Climbers stuck together, no matter what sacrifices were required;" "Climbers felt that it was their duty to take care of one another even if they had to sacrifice their own preferences or accomplishments;" and "Climbers on the expedition stayed together as much as they could." We factor-analyzed responses using varimax rotation. One factor measuring collectivism emerged with an eigenvalue of 1.93. Each of the four items loaded over 0.60 on the factor without any cross-loadings and with a Cronbach's alpha of .80 so we averaged responses to these four items to create a collectivism scale for each respondent. This measure, when entered into a regression analysis, significantly predicted climbers' country-level collectivism score ($\beta = 3.71$, $p = 0.005$), providing evidence that country-level scores based on Hofstede's index were valid measures of collectivism at the individual level.

the Himalayan Database prior to each focal climb ($\bar{x} = 1.32$, $SD = 3.41$). Sixty-one percent of ascents were attempted by a climber with no previous climbs in the region; 25% by a climber with one or two previous climbs in the region; and the remaining 14% were attempted by a climber with three or more previous climbs in the region. Ten percent of the climbers in our sample had more than three prior climbs, while less than 3% had 10 climbs or more.³ We used these data to construct, for each expedition, the coefficient of variation to reflect the dispersion in individual climber expertness within the team ($\bar{x} = 1.31$, $SD = 0.93$) – this is our measure of objective team expertness diversity. The coefficient of variation is the standard deviation of climber expertness divided by the mean of climber expertness in the expedition.⁴

Control Variables

Climber attributes within expeditions. We averaged climbers' age within expeditions ($\bar{x} = 36.93$ years, $SD = 10.03$ years) to create an expedition-level age control variable ($\bar{x} = 37.16$, $SD = 7.14$), since being particularly young or old may diminish a climber's physical ability to reach the summit (Huey et al.

³ As a robustness check, we also constructed a Blau index for climber experience using the three categories of experience used for calculating our objective task diversity variable (0 prior climbs, 1-2 prior climbs, or three or more prior climbs). The mean of this index was 0.35 ($SD = 0.22$). We estimated models with this covariate in place of the coefficient of variation reported above and obtained the same pattern of results.

⁴ As is commonly noted in journalistic accounts (e.g., Jolly 2010), the Himalayan Database represents an unusually complete and accurate record—particularly with respect to climber names, generally including extra identifiers such as middle names and nicknames. Nevertheless, as with any database of this size, the potential for inaccuracies in record keeping exists. Accordingly, as a robustness check, we investigated any name-related discrepancies, due to the fact that we constructed our experience variables on the basis of climber names. We focused our attention on repeat climbers. The goal was to identify any instance of repeat climbers who may have, in actuality, been two different people, on the base of discrepant identifying information: Specifically, year of birth and current place of residence. We started by identifying the 458 repeat climbers who exhibited a standard deviation of greater than 0 in their year of birth. Many climbers were included in this category because at least one of their entries did not include a year of birth. For example, Aitor Iparragirre Sagarna appears twice in our final data, once with a 1972 year of birth and once with a missing year of birth—but, in both instances, showing the same residence. We did not consider climbers who fit this profile to be at risk. An additional type of climber had entries for year of birth in each appearance, but one or more discrepancies in the year itself. For example, Alix Christin Dorothee Von Melle appears five times in our final data. In each case, his residence is listed as Hoehenkirchen, Bavaria, Germany, and in all cases but one his year of birth is listed as 1971 (the exception is 1981). We did not consider climbers who fit this profile to be at risk. Our risk profile therefore consisted of repeat climbers who exhibited different years of birth and places of residence in different entries, though of course this could also reflect a combination of record-keeping errors and change of residence in between climbs. For example, Alberto Bianchi appears six times in our data; twice, his year of birth and place of residence are listed as 1943 and Como, Italy, while four times his year of birth and place of residence are listed as 1949 and Milano, Italy. Accordingly, we coded him as “at risk” for the purposes of this robustness check. In total, we identified 151 climbers who fit this “at risk” profile. We next coded their experience as missing and reran all the models depicted in Table 2. Doing so did not change our pattern of results.

2007). We also created a control variable for the proportion of female climbers in an expedition ($\bar{x} = 0.10$, $SD = 0.15$). Since group size could influence both group interactions and outcomes (Staats et al. 2012) and given the danger of bottlenecks on the route in which slower climbers block key passages for subsequent climbers, we also controlled for the number of climbers in each expedition. The average size of expeditions in our sample was 7.45 climbers ($SD = 4.81$). We controlled for the team's mean expertness in the Himalayan region by constructing a ratio of climbers within an expedition who had attempted at least one prior climb divided by the total number of climbers in the group ($\bar{x} = 0.41$, $SD = 0.32$). Following relational demography research, this measure – team mean expertness – controls for “simple” expertness—that is, the presence of more or less expert members within an expedition (Tsui et al. 1992). In contrast, our independent variable pertaining to expertness, described above, measures the *dispersion* of a group's expertness net of how expert the members are overall (that is, the independent variable, “team expertness diversity”).⁵

Climber support. Using oxygen increases a climber's probability of summiting. ‘Oxygen ratio’ represents the proportion of bottled oxygen users to total climbers in each group ($\bar{x} = 0.14$, $SD = 0.29$). Support personnel are paid for various essential duties, such as breaking trail, fixing rope ahead of the climbers, and transporting supplies. A higher ratio of support personnel to climbers is likely to improve expedition success. ‘Support ratio’ represents the ratio of high-altitude porters and Sherpas to total climbers in each expedition ($\bar{x} = 0.22$, $SD = 0.31$).

Mountain and weather conditions. We included year and mountain dummy variables (fixed effects) to address unobserved heterogeneity between expeditions, since different mountains and the conditions in different years present varying challenges for climbers (Wooldridge 2010). Thus, our models analyze differences in outcomes only between expeditions that ascended the same mountain in the same year, making expeditions more comparable and less subject to selection and history effects.

Type of expedition. Expeditions are either commercial and formed in an ad hoc manner or non-commercial, usually emerging from preexisting ties between prominent climbers (Krakauer 1997, p. 44). In our sample 1,034 expeditions (20%) were commercial and 4,180 (80%) were non-commercial. We

⁵ We also estimated our models without the control for simple expertness and obtained similar results.

created a control variable and coded commercial expeditions as 1 and non-commercial expeditions as 0 ($\bar{x} = 0.20$, $SD = 0.40$).

STUDY 1: RESULTS

Means, standard deviations, and correlations among Study 1 variables are presented in Table 1.

[Insert Table 1 About Here]

Collectivism Improves Conjunctive Task Performance in Groups with High Objective Relational Diversity

Model 1 in Table 2 shows the base equation estimating an expedition's summing ratio – our measure of conjunctive task performance. The control variables simple expertness, oxygen ratio, and support ratio were positively associated with summing, while older climbers were less likely to reach the summit. Model 2 introduces our independent variables and shows that collectivism was positively associated with conjunctive task performance ($\beta = 0.089$, $p < .01$). Model 3 adds the predicted interaction in H1A between collectivism and objective national diversity on conjunctive task performance, which was positive and significant ($\beta = 0.376$, $p = .01$). Figure 1A displays the form of the interaction. As predicted, collectivism increases conjunctive task performance when objective national diversity is high ($\beta = 0.214$, $p < .05$) and has no effect on conjunctive task performance when objective national diversity is low ($\beta = 0.010$, $n.s.$), supporting Hypothesis 1A.

[Insert Table 2 and Figures 1A and 1B About Here]

Collectivism Harms Disjunctive Task Performance in Groups with High Objective Task Diversity

Model 4 in Table 2 shows the base equation estimating an expedition's safety, or probability of avoiding climber death—our measure of disjunctive task performance. Model 5 introduces our independent variables and shows that collectivistic groups performed worse on the disjunctive task ($\beta = -0.050$, $p = .01$). Model 6 adds the predicted interaction (H1B) between expertness diversity and collectivism, which is negative and significant ($\beta = -0.041$, $p = .03$). Figure 1B displays the form of the interaction. As expertness diversity increases, expeditions that are more collectivistic perform worse on the disjunctive task ($\beta = -0.017$, $p < .01$), and there is no relationship when objective expertness diversity is low ($\beta = -0.001$, $n.s.$), supporting H1B.

STUDY 1: DISCUSSION

We show that past contradictory accounts of the effects of collectivism on group performance can be understood by considering the objective forms of diversity present in the group and the group task type. Collectivism boosts summing, a conjunctive task, when objective group national diversity is higher, while it reduces safety (increases climber death), a disjunctive task, when objective group expertness diversity is higher. We see from Figures 1A and 1B that collectivism only operates in the context of diverse groups to significantly boost summing (a conjunctive task) and reduce safety (a disjunctive task), and has no effects in less diverse groups, as we proposed in Hypotheses 1A and 1B. These results support our theory suggesting that collectivism influences performance when objective diversity is high, but not when objective diversity is low, and offer insight into how past mixed findings on the effects of collectivism on group performance can be reconciled. In further support of our model, the main effects of both collectivism and objective diversity varied in significance and direction across the models and dependent performance variables that we studied, which supports that idea that understanding both collectivism and objective diversity requires considering how collectivism moderates the impact of relations and task-oriented diverse groups working on conjunctive and disjunctive tasks.

This study enables us to advance collectivism theory by accounting for the levels of objective diversity in the group, but our results also have implications for diversity research. Specifically, our results suggest that the effects of objective diversity are dependent on the levels of collectivism in the group and the type of task on which the group is working. Objective nationality diversity—when paired with collective norms that reduce members’ perceptions of their differences in nationality—can provide groups with the optimal level of distinctiveness to achieve the social harmony needed for conjunctive task performance (Hornsey and Hogg 2000). Similarly, objective expertness diversity—when paired with collectivistic norms that reduce a group’s ability to recognize and use expertness—may lead to perceived unfairness and resentments that derail the information elaboration needed for disjunctive task performance (Steiner 1972). Future research could usefully test these possibilities directly.

In Study 2, we use the laboratory setting to provide a causal test of our model to rule out alternative explanations, avoid selection effects, and most importantly, test the proposed mechanism by which collectivism operates: by reducing perceived diversity.

STUDY 2 METHOD

Sample and Data

We conducted a group level experiment in two West Coast universities' behavioral laboratories. Our design varied group norms (individualism or collectivism as categorical variables) and group composition (homogeneous (control), nationally diverse, and expertness diverse). The six conditions are outlined in Appendix 1A. We collected data from 366 interacting groups, each with three members, or a total of 1098 subjects. Subjects were required to be over 18 years old, 32% were female, they averaged 23 years old ($\bar{x} = 23.3$, $SD = 6.4$), 40% were Asian, 38% were White, 17% were Black, and 15% categorized themselves as "Other." Overall these were typical samples from these universities.

Procedure

We presented subjects with a scenario in which they were members of a group of astronauts landing on the moon ("Moon Landing" [Hall and Watson 1970]). We manipulated subjects' and their expeditions' normative orientation to emphasize collectivism or individualism more, and group members were either from the same or different fictional countries (national diversity) and had the same or different levels of space travel expertness (expertness diversity). The scenario specified that the astronauts were exploring the moon in a small spaceship, had crashed on the surface of the moon, and had to safely find their way to the mother ship located 200 miles away. Expedition groups had to complete three tasks, which included rank-ordering items they could carry with them on the expedition (a control task), allocating four remaining oxygen tanks among the three group members (a conjunctive task), and selecting a route to the mothership, one of which was more direct but more dangerous, the other of which was significantly longer but safer (a disjunctive task).

The study included three phases: In phase 1 (20 minutes), subjects were randomly assigned to a private laptop computer station to work individually. During this phase, subjects were presented with the group collectivism norm manipulation, information about themselves and their group, and the Moon Landing

scenario. We prepared subjects to join their groups by describing information about the group's demographic composition in terms of each climber's nationality (native of one of three fictional countries), and the number of times they had traveled in outer space (low, medium, or high—corresponding with 0, 1, or 3 prior space expeditions). During this phase, subjects were asked to complete various tasks associated with the norm manipulation and assessing their group's composition, described in more detail in the variables section below. Phase 2 (20 minutes) comprised the group discussion in which groups of three subjects worked on and came to a decision on the three tasks (representing a conjunctive, disjunctive, and control task) regarding their Moon Landing situation in a meeting room. In phase 3 (15 minutes), subjects returned to their private laptop station to complete additional survey questions pertaining to their group experience. Experimenters provided explicit instructions and time parameters for each phase of the experiment. All subjects who completed the experiment were paid.

Independent Variables

Norm to be collectivistic. We manipulated both subjects' and their groups' collectivistic orientation in two ways. First, subjects were randomly administered either a collectivistic or individualistic prime (0 = individualistic [50%], 1 = collectivistic [50%]) in Phase 1 of the study. Subjects in the collectivistic condition wrote down three groups to which they belong and why it would be advantageous to "blend in with a group," while those in the individualistic condition wrote three statements describing something unique about themselves and the advantages of "standing out from other people." This procedure is commonly used to prime collectivism and is consistent with experimental and non-experimental research on these norms (Goncalo and Staw 2006). Second, the content of the Moon Landing scenario was presented differently based on subjects' normative condition, consistent with prior experimental manipulations of collectivism (Chatman et al. 1998). The scenario description included an excerpt from one astronaut's diary, which emphasized either the collaborative or independent nature of the astronauts' interactions on the trek so far (Appendix 1B).

We checked these manipulations in phase 3 by asking subjects to rank 12 words that described their groups' organizational culture from most (1) to least importance (12). Because this is the rank of collectivism in relative importance compared to the other descriptor words, a lower rank

signals that collectivist groups rated collectivism as a higher-ranked value than did individualistic groups. In support of our manipulation, participants rated the item describing their culture as ‘collectivistic’ as higher in the collectivistic condition ($\bar{x} = 5.67$, $SD = .14$) than in the individualistic condition ($\bar{x} = 6.24$, $SD = .14$, $F(1, 354) = 8.37$, $p < .001$, $\eta^2 = .01$).

Objective group diversity. We manipulated group diversity with three conditions—homogenous, nationally diverse, and expertness diverse. To manipulate objective national diversity, subjects were randomly assigned to a Moon Landing expedition group that included members from either the same or different nations (0 = all astronauts are from the same nation, 1 = astronauts are from different nations). For all models testing objective national diversity, objective expertness diversity was held constant at a moderate level for all members (homogeneous). To manipulate objective expertness diversity, subjects were randomly assigned to an expedition group that included members who had either the same or different numbers of prior space missions (0 = astronauts have the same level of expertness, 1 = astronauts have different levels of expertness). Astronauts had been on zero, one, or two space expeditions in the past. In homogeneous groups, all members had one prior mission (medium). In heterogeneous groups, one member had two prior missions (high), and two had no prior missions (low). For all models testing objective expertness diversity, objective national diversity was held constant, such that all members came from the same group (homogeneous).

Dependent Variables

Our dependent variables consisted of perceived group diversity and two tasks to assess the group’s ability to accomplish a conjunctive and a disjunctive task. We also used the standard Moon Landing ranking task, in which members ranked the utility of items to take on the journey back to the mother ship, as a measure check to determine whether our results were specific to conjunctive or disjunctive tasks.

Perceived Group Diversity. To assess perceived group diversity, we measured whether subjects accurately perceived the full demographic composition of the astronautic group described in the scenario, in terms of members’ nationality and prior experience. After the group task and while seated at their individual cubicles, participants were asked, “What are the nationalities of your two crew mates?” and “How many prior expeditions have your two crew mates been on?” We did not permit subjects to go back

to view the group member descriptions to verify their responses.⁶ Twelve response options were presented for each of the diversity dimensions (e.g., for nationality: “1 from Jyneb, 1 from Uamol”, “1 from Soclux, 1 from Uamol”, “2 from Jyneb”; for expertness: “2 and 2”, “1 and 3”, “4 and 0”). Subjects who recalled their group’s composition correctly were assigned a 1 and those recalling group members incorrectly were assigned a 0 (nationality: $\bar{x} = 0.38$, $SD = 0.28$; expertness: $\bar{x} = 0.19$, $SD = 0.26$). Of those who were inaccurate, only 3% perceived there to be more national diversity than actually existed and 5% perceived there to be more expertness diversity than actually existed, suggesting that inaccuracy was almost always in the direction of seeing less diversity than what actually existed in the group. We then averaged individual accuracy at the group level, with scores ranging from 0 (no members correctly perceived their group composition) to 1 (all three members correctly perceived their group composition), and similar to past approaches (Daniels et al. 2017) we used two (accuracy of) perceived group diversity scores – one each for national diversity and expertness diversity.

Conjunctive Task Performance: Unbiased resource sharing. In phase 2 of the experiment we asked subjects as a group to allocate oxygen across group members. The group had four oxygen tanks left and had to decide how to allocate the tanks within the 3-person group, in whole units (no fractions). Recalling Steiner’s (1972) typology, we considered this to be a conjunctive task because failure to allocate the tanks fairly would exacerbate the extent to which the “weakest link” member constrains the group’s collective performance. Conversely, providing tanks to all group members fairly—rather than, for example, preferentially—improves each member’s and the group’s chances of successfully reaching the mother ship and with it, achieving their ultimate goal. We expected that, rather than preferentially giving oxygen to one or another of the astronauts, collectivistic groups would be more likely to allocate oxygen equally across all group members. We asked subjects to decide as a group: “How many [of the four remaining] oxygen tanks will your crew allocate to each of the following crew members?” We then calculated the standard deviation across individual-allocations per group, to see the extent to which tanks were shared

⁶ This assessment occurs very quickly. In pilot experiments that we conducted prior to this study, we asked subjects to state the composition of their group immediately following the norm manipulation and found that they exhibited the same pattern of inaccurate perception: subjects in the collectivism condition were significantly more likely to perceive their crewmates’ identities as significantly less diverse in terms of nationality ($F(1,157) = 5.15$, $p < .05$) and expertness ($F(1,157) = 10.60$, $p < .01$).

equally, or disproportionately given to a single member or two ($\bar{x} = 0.56$, $SD = 0.18$). Sharing resources equally to ensure that all members ‘cross the finish line’ is a classic example of conjunctive task performance (Steiner 1972).

Disjunctive Task Performance: Heeding an expert member’s safe route advice. Consistent with our theory that blurring demographic differences is problematic when the attributes on which members differ are task-oriented, we used the group’s route choice as their disjunctive task. Recalling Steiner’s (1972, p. 17) typology, route choice is a disjunctive task because “the success of the group [depends] upon which member’s performance is selected to represent the group effort.” In other words, the group will succeed or fail based on whether they act upon the route recommendation of the most knowledgeable or expert member. We presented the route options using a map of the territory on the moon (Appendix 1C) and told subjects that Route A was more direct but more hazardous because it crossed through a series of steep mountainous ridges, whereas Route B was much longer but comparatively flat with no significant obstacles in the terrain. For groups with expertness diversity, we provided the most expert member of the group unique information about which route choice had the highest survival rate in the past (Route B). We expected subjects in the collectivism condition to blur other astronauts’ number of prior space expeditions and as a result, that their decisions would be less influenced by the advice-giver’s level of expertness. To test this, we asked subjects which route to the mothership they would choose and analyzed whether this decision was influenced by the advice of the most expert member in the group.

Groups were asked to choose which route they would take and rate their confidence in this decision. We computed the standardized interaction of choice and confidence, to reflect the degree to which groups would confidently take a safer route ($\bar{x} = 0.20$, $SD = 1.13$). If, as we predict, collectivism blurs diversity, subjects primed with collectivism should be less likely to heed the advice of the more expert astronaut and less likely to choose the safe route.

Dependent variable measure checks. We ran a separate measure check study on Survey Monkey. We gave one hundred fifty-seven participants a definition of conjunctive and disjunctive tasks, and then asked to assess how conjunctive or disjunctive each of the two tasks were. To measure how conjunctive or disjunctive each task was, we used the same design and items as in Study 1. In support of our

operationalization of equitable resource distribution, the oxygen tank task was seen as more conjunctive ($\bar{x} = 4.96$, $SD = 1.90$) compared to the route choice task ($\bar{x} = 3.50$, $SD = 1.88$, $F(1, 156) = 35.52$, $p = .000$, $\eta^2 = .20$), and the route choice safety task was seen as more disjunctive ($\bar{x} = 4.80$, $SD = 1.82$) compared to the oxygen tank task ($\bar{x} = 3.30$, $SD = 2.00$, $F(1, 156) = 37.69$, $p = .000$, $\eta^2 = .20$).

RESULTS

The key purpose of this study was to test Hypothesis 2 regarding the role of perceived diversity in mediating the interactive effect of collectivism and objective group diversity on group performance. We first examined the first part of the mediation chain, whether collectivism would cause subjects to blur heterogeneous demographic attributes in more (but not less) objectively diverse groups, by conducting ANOVAs analyzing the effects of collectivistic norms and objective group diversity on subjects' perception of the diversity of their group's composition. This interaction was significant for both types of diversity (individualism/collectivism X objective group national diversity: $F(1,362) = 11.29$, $p < .001$, $\eta^2 = .030$; individualism/collectivism X objective group expertness diversity: $F(1,362) = 7.86$, $p = .005$, $\eta^2 = .021$). Among objectively nationally diverse groups, groups in the collectivism condition perceived less group national diversity ($\bar{x} = 0.40$, $SD = 0.31$) than in the individualism condition ($\bar{x} = 0.57$, $SD = 0.25$; $F(1,120) = 10.86$, $p < .001$, $\eta^2 = .083$). Similarly, among objectively expertness-diverse groups, groups in the collectivism condition perceived less group expertness diversity ($\bar{x} = 0.59$, $SD = 0.33$) than in the individualism condition ($\bar{x} = 0.75$, $SD = 0.31$; $F(1,120) = 7.58$, $p = .007$, $\eta^2 = .059$). As expected, these differences did not emerge in nationally homogenous groups ($F(1,242) = 0.572$, $n.s.$, $\eta^2 = .002$) or expertness homogenous groups ($F(1,242) = 0.231$, $n.s.$, $\eta^2 = .001$). Figures 2A and 2B display these contrasts.

[Insert Figures 2A and 2B About Here]

Next, we used multiple regression analyses, as well as the Hayes' PROCESS macro in SPSS, to test for the full mediation chain as proposed in H2A, that collectivism would improve conjunctive task performance in nationally diverse task groups (a relations-oriented attribute), and that this effect of collectivism on task performance would be mediated by blurring (Figure 3A). Replicating our ANOVA results above, and in further support of the first step of the mediation chain (see Table 4,

Model 1), we found an interactive effect of collectivism and objective national diversity on the perception of national diversity ($\beta = -0.173, p = .002$). Collectivism was negatively related to perceived group national diversity in groups with high objective national diversity, ($\beta = -0.29, p < .001$, Adj $R^2 = .15$), but not in nationally homogenous groups ($\beta = 0.05, n.s.$). In support of the next step of the mediation chain (see Table 4, Model 5), perceived group national diversity was negatively related to conjunctive task performance ($\beta = -0.132, p = .021$). For the final step of the mediation, we used Hayes' (2017) macro for mediation (Model 5), in which we included all three of our manipulated factors (collectivism, objective expertness diversity, objective nationality diversity) and ran 5,000 bootstrapped iterations. We found that perceived group national diversity indirectly mediated the relationship between collectivism and conjunctive task performance in objective nationally diverse groups (coefficient = 0.007, SE = .004, 95%CI: .0004, .016; Figure 3A), but not in objectively nationally homogenous groups (coefficient = -0.002, SE = .002, 95%CI: -.007, .003). In support of indirect mediation—an approach advanced for by Rucker and colleagues (2011) in which no main effect of the independent variable on the dependent variable is needed—we found that collectivism relates to perceived diversity and perceived diversity relates to group performance, as predicted. These effects hold within groups in which objective expertness diversity was not also manipulated. These findings are consistent with H2, and build on our findings from Study 1 by showing the mechanism by which collectivism affects performance in objectively diverse groups—the blurring of perceived group diversity.

We then tested whether collectivistic (as opposed to individualistic) groups would perform worse with respect to safety (a disjunctive task outcome) in objectively expertness diverse groups, and that blurring would mediate the effect of collectivism on disjunctive task performance as proposed in H2B. In support of the first step of this mediation model (see Table 4, Model 2), collectivism and objective expertness diversity interacted to significantly affect perceptions of diversity ($\beta = -0.131, p = .019$, Adj $R^2 = .15$). Decomposing this interaction (see Figure 3B), we found that within objectively expertness-diverse groups, collectivism led to lower perceived group expertness diversity ($\beta = -0.24, p = .007$), but no such relationship emerged in objectively homogenous groups ($\beta = -0.03, n.s.$). Marginally supporting the

second step of this mediation model (see Table 4, Model 8), perceived group expertness diversity improved disjunctive task performance, that is, groups perceiving higher levels of expertness diversity made safer route choices in which they had more confidence ($\beta = 0.106, p = .064$). Finally, supporting the last step of mediation, using Hayes' (2017) macro for mediation (Model 14, 5,000 bootstrapped iterations), perceived group diversity indirectly mediated the relationship between collectivism and group route choice in objectively expertness-diverse groups (coefficient: $-.037$, SE: $.024$, 95%CI: $-.094, -.001$; Figure 3B), but not in objectively homogenous groups (coefficient: -0.004 , SE: $.009$, 95%CI: $-.024, .013$). Again, these effects hold within groups in which objective national diversity was not also manipulated. These findings support Hypothesis 2 and provide insight into the mechanism explaining our findings in Study 1—in objectively expertness diverse groups, collectivism harms disjunctive task performance by causing people to blur their perceptions of their group's expertness diversity.

[Insert Figures 3A-3B About Here]

Study 2 Discussion

Our findings from Study 2 complement and extend Study 1. We again showed that collectivism boosted performance on a conjunctive task when objective national diversity was high (but not low) and reduced performance on a disjunctive task when objective expertness diversity was high (but not low), and that this effect occurred indirectly through perceptions of group diversity. A strength of this study is that it identifies the mechanism by which collectivism operates by causing people to seeing less diversity than objective exists. When groups were primed to be more collectivistic, members perceived the group as having significantly less nationality and expertness diversity than when they were primed to be individualistic. Further, these blurred perceptions of diversity mediated between the group's collectivism and their performance, such that blurred perceptions of relational diversity *improved* performance on a conjunctive task (that was best accomplished with all members uniting and working together to succeed), but blurred perceptions of task diversity *reduced* performance on a disjunctive task (one that was best accomplished with members noting differences in expertness and ultimately taking the advice of the most expert member).

Both Study 1 and 2 illustrate the risk of relying on simple main effect relationships between collectivism and group performance. Both sets of findings suggest that using collectivism or objective diversity alone to predict performance may be misleading. Indeed, the main effects of collectivism and objective diversity in our paper vary across model and study, with, for example, objective national diversity helping conjunctive performance in Study 1 and then hurting both conjunctive and disjunctive performance in Study 2. As we show across studies, the true effect of collectivism depends on the interaction between the objective diversity present and the type of task—conjunctive or disjunctive—on which the group is working. Collectivism helps conjunctive task performance in more (but not less) objectively nationality diverse groups and hurts disjunctive task performance in more (but not less) objectively expertness diverse groups (directly in Study 1, indirectly in Study 2 via perceptions of group diversity).⁷

Our findings are compelling given the overall convergence in conclusions across the two studies, with more realism and strong effects in the field but less ability to discern causality and underlying mechanisms, and less realistic and weaker effects in the lab but random assignment enabling causal conclusions and mediation tests. Such triangulation is critical in ensuring the robustness and replicability of theory across settings.

GENERAL DISCUSSION

Adopting a norm of collectivism can both help and hurt group performance. Across an archival study of Himalayan mountain climbing expeditions with consequential outcomes and a group experiment identifying blurring as the underlying mechanism explaining our effects, we test a broad range theory explaining when and why collectivism is more likely to benefit or harm groups. We found that collectivism can improve conjunctive task performance in more (but not less) objectively relationally diverse groups by causing members to perceive less relations-oriented diversity (nationality) than objective exists but can reduce group disjunctive task performance in more (but not less) objectively task

⁷ While we find direct effects in Study 1, our effects in Study 2 are indirect (the direct interactive effects of collectivism and objective diversity on performance are directionally consistent with Study 1, albeit without reaching conventional levels of significance). This pattern of direct effects in the field and indirect effects in the laboratory is consistent with past research, which typically finds stronger effects in the field as opposed to the laboratory (Van Bunderen et al. 2018, Van Dijk et al. 2012).

diverse groups by blurring members' perception of how much task diversity exists (expertness). Our research suggests that the effects of collectivism on group performance can be understood by identifying how collectivism influences people's perceptions of group diversity and the utility of that perceived diversity in different task settings. Studying Himalayan expeditions allowed us to test our hypotheses in an externally valid setting where positive and negative group performance yielded immensely consequential outcomes, including death. Our group experiment complemented this study, enabling us to identify and test the causal link between collectivism and group performance as well as the mediating role of perceived group diversity.

Theoretical Implications

First and foremost, our paper challenges existing thought on the universal benefits of collectivism in groups. Specifically, our results suggest that by overemphasizing the positive impact of a collectivistic orientation on group effectiveness, particularly in the context of diversity, researchers have missed an important distinction that would enable more accurate predictions of group performance. It is certainly true that collectivism can improve group processes in many ways, for example by increasing members' identification and cooperative behavior within the group (Gelfand et al. 2006). Our research, however, proposes a counterintuitive detriment associated with collectivism. Because these positive effects are driven by cognitive and motivational processes in which distinctions between group members are blurred, collectivism also interferes with the elaboration of task-relevant information. In particular, our research shows that members of groups characterized by objective expertness diversity will fail to view other members, even those who have more expertness on the task, as potential sources of novel and useful information because perceiving the differences among members is discordant with the norm of collectivism. This is important because recognizing novel and useful information is the most critical antecedent to elaboration (Van Knippenberg et al. 2004), and without the prerequisite of perceiving differences in members' task-related expertness, groups are less likely to go on to attain superior performance (Nemeth and Kwan 1987).

Second, our theory provides insight into both the mechanism and contingencies that can explain why and when collectivism can hurt or harm group performance. At the broadest level, our theory and

empirical tests highlight the importance of considering group norms and group composition in conjunction when anticipating how groups are likely to approach and accomplish tasks requiring different types of interdependence. Research has already shown that diverse groups with collectivistic norms are more cooperative (Chatman et al. 1998). Indeed, prior research and practical guidance has typically advocated for diverse groups to emphasize collectivism, arguing that it is essential to diminish the interpersonal discomfort caused by diversity and enable members to work together (Jehn and Bezrukova 2010). Thus, our more specific contribution is to show that such universally prescribed advice is misguided because, when diverse groups adopt a norm to be collectivistic, it causes members to indiscriminately blur differences among them, regardless of whether maintaining salient differences is relevant to the task or not. Thus, we identify a kind of collateral damage caused by an emphasis on collectivism in diverse groups because of the indiscriminate effect it has on reducing perceived diversity. This is a key contribution because it will enable more precise predictions of when groups will and will not be effective—by taking the collectivistic norm, types of diversity and task type into account. From a practical standpoint, our theory offers insight into when and why it may be more important to promote valuable diversity rather than to blindly promote cohesion and shared values. Promoting certain types of diversity, even if it means enduring the possible discomfort that often accompanies it (e.g., Chatman and Flynn 2001), may be necessary to surface sufficient levels of information elaboration and risk assessment to successfully accomplish disjunctive tasks.

This insight also advances our understanding of norms more generally because it shows that collectivism, which has often been studied as cooperative behavior within groups, has a kind of “second order effect.” Beyond promoting cooperativeness, collectivism also causes members to see diverse colleagues as more similar than they actually are. Future research might identify other norms that have similarly far reaching impact on groups. For example, Goncalo and colleagues (2015) found that the norm of political correctness not only increased members’ sensitivity to one another, it also reduced uncertainty and enabled members to take the risks necessary to contribute to a creative task. And, in addition to dictating specific behaviors such as precision, standardization, and reliability, cultures that are higher on

the tightness side of the looseness-tightness dimension (Gelfand et al. 2006) are more likely to enforce norms across the board compared to those that are loose.

Third, we extend the emerging literature on perceptions of diversity in groups (Phillips et al. 2018, Shemla et al. 2016). Prior research has alluded to the possibility of a blurring process operating in diverse groups, in which objective demographic differences are not necessarily perceived or seen as salient (Hornsey and Hogg 2000). We build on and extend this concept by offering the first empirical test that shows how collectivism's effect on reducing perceived diversity can be beneficial or detrimental to group performance depending on the fit between the diversity and task type. Specifically, we found that a collectivistic orientation minimized the disruptive impact of relations-oriented national diversity on conjunctive tasks in which a group-focus is needed by causing members to blur perceptions of relations-oriented diversity in the group. At the same time, a collectivistic orientation minimized the beneficial impact of task-oriented expertness diversity on disjunctive tasks, where individuation and expertness identification are necessary, by causing members to blur perceptions of the group's task-oriented diversity.

Relatedly, while the predicted interactions were significant, our pattern of non-findings make sense in terms of our theory since the interaction between collectivism and task-oriented diversity in climbers' expertness was *not* significantly associated with the conjunctive tasks outcomes of summiting (Study 1, Table 2, Model 2: $\beta = -0.007$, n.s.) or sharing oxygen (Study 2, Table 4, Model 4: $\beta = -0.082$, n.s.), nor was the interaction between collectivism and relations-oriented diversity in climbers' nationality significantly associated with the disjunctive outcome of safety (Study 1, Table 2, Model 6: $\beta = -0.05$, n.s.; Study 2, Table 4, Model 7: $\beta = 0.034$, n.s.). This specific pattern, which emerged in Study 1 and which we then, of course, designed into Study 2 by examining only one type of diversity at a time, illustrates the importance of specifying different performance outcomes in terms of the nature of the task as conjunctive or disjunctive. It also advances our knowledge by providing insight into when diversity is perceived and how different forms of perceived diversity influence different group task outcomes.

From a pragmatic standpoint, these findings suggest that diverse groups should strive to carefully assess the usefulness of specific diversity attributes in terms of their task orientation and utility to the

group, attempting to blur only those differences that are disruptive and preserve and even promote those that are useful. Further, just as entrepreneurs need to find a balance between generating ideas and evaluating them to be successful (Brockner et al. 2004), diverse groups need to also balance their interactions across both conjunctive and disjunctive tasks during the course of their ongoing interactions, recognizing that blurring task-oriented attributes may lead to worse disjunctive task outcomes.

Study Limitations and Future Directions

Our research design constitutes a rigorous test of our theory, insofar as we are able to isolate the predicted mechanism in a randomized controlled experiment while providing results that are consistent with it in an externally valid setting—a distinctive combination, since most collectivism research has utilized student samples (Oyserman et al. 2002). Taken together, the theory we propose here may enable more precise predictions regarding collectivism and group performance in the presence of diversity.

A key question is how generalizable our results are to other group settings given the extreme nature of Himalayan mountaineering and the artificiality of experimental simulations. First, our results are directly applicable to groups working on many types of performance-oriented tasks, ranging from high-stakes groups such as oil extractors (Ely and Meyerson 2010) and astronauts (Madsen and Desai 2010) to more typical tasks such as researchers working on a paper and start-ups launching a product to market because of both the fundamental nature of collectivism and the impact of diversity in groups that are performance oriented. Specifically, if diverse work groups are encouraged to embrace collectivism, as they often are (Chatman and Flynn 2001), they may fail to value expertness and, as a result, experience particularly dire consequences. Second, the Himalayan Database included a range of nationalities unequaled by prior datasets but more typical in work settings than the two or three nationalities typically examined in most organizational research (Earley 1989). This range in nationality may increase the extent to which our findings generalize across different nations. Third, since climbers plan for years prior to an expedition, their goal orientation is uniformly high—making our results applicable to groups that undertake work tasks with elevated levels of motivation (Pieterse et al. 2013). Thus, while Himalayan expeditions are an unusual sample from an organizational standpoint, they can still teach us a great deal about how collectivism influences the relationship between group diversity and performance. And our

replication in a group laboratory experiment suggests that the model could generalize to other settings. Finally, the context of the Himalayan study is such that the outcomes of summiting and death are expected to be almost entirely determined by factors orthogonal to our theorizing such as individual differences in climber skill, technology utilization, and exposure to weather patterns. Accordingly, the fact that we are able to identify effects related to our theory of group dynamics is meaningful. As Prentice and Miller (1992, p. 163) note, “Showing that an effect holds even under the most unlikely circumstances possible can be as impressive as (or, in some cases, perhaps even more impressive than) showing that it accounts for a great deal of variance.” That said, our effect sizes were modest in the experiment and thus, efforts to replicate these findings would be useful.

Study 1 is, of course, vulnerable to the selection concerns that are commonly associated with observational studies. Assessing collectivism through the use of country-level Hofstede scores also represents a somewhat blunt approach, insofar as there is clearly variance in collectivism between individuals of the same nationality. In essence, our research design for Study 1 sacrifices depth, in terms of a more granular measure of norms, for breadth, by enabling us to conduct a large-scale group study. Further, because people are not randomly assigned to mountaineering expeditions, and because our research objectives precluded the use of a small number of climbers from the initial sample who hail from countries without Hofstede scores, we cannot make strong causal claims with respect to collectivism’s influence on real-life Himalayan climbing outcomes. The corroborating evidence we obtained from our second study, which was experimental in nature, brings us much closer to this desired outcome. The performance outcomes in Study 2, of course, were simulated and thus somewhat artificial, limiting the generalizability of the findings. Together, however, studies 1 and 2 both confirm and complement each other in supporting our theory.

Finally, we note that our results suggest several opportunities for future research. First, because we only tested our theory with respect to two demographic attributes, future research could explore how collectivism influences the diversity-performance relationship using other relations- and task-oriented attributes such as gender and tenure. There is already some evidence that collectivism may combine differently with different attributes. For example, Ely (2004) found no main effect for sex and race but did

find negative effects on group performance for age, education, and tenure, which may be explained by considering the moderating effect of collectivism. Further, the present research did not address the question of whether collectivism blurs all types of diversity equally, a fruitful line of inquiry, as it is plausible that some distinctions are more resistant to the blurring effect. Finally, it would be useful to explore the mechanisms by which perceived diversity drives different task outcomes and whether cohesion and weighting members' views unequally applies to other types of tasks than those studied here.

Second, given that one of the primary means for uniting diverse groups is emphasizing collective goals, future research may include experiments that examine the comparative impact of emphasizing other norms such as valuing diversity or political correctness, that encourage cooperation but enable members to still feel comfortable expressing defiant or unpopular topics without fear of rejection (Goncalo et al. 2015, Homan et al. 2007). Additionally, research might explore how to inoculate diverse groups against performance-reducing blurring by highlighting important differences to the task and why diverse members of the group were chosen for the task (Flynn et al. 2001).

Third, the means by which perceived diversity is reduced should be further investigated. One key question is whether attention is motivated or not—that is, do people blur demographic distinctions because collectivism motivates them to do so, or as the result of what is effectively a cognitive bias? A second question revolves around the individual level process of blurring. Our study, conducted at the group level, did not distinguish between whether the effects of collectivism on perceived diversity occur because individuals fail to seek out task-relevant and potentially non-redundant information from *other* group members or because individuals fail to put forth task-relevant and potentially non-redundant information that they *themselves* possess to the group. Further, though our measure captured blurring rather than ignoring, since ignoring others' differences would imply that subjects perceived the differences but failed to use them, it would be useful to conduct a direct test. Relatedly, though not tested here, our findings pose a potential explanation for why cultures that emphasize a norm to be collectivistic (particularly popular among startups in Silicon Valley) may struggle to attract a diverse employee base (Guynn 2017): Their collectivistic cultures may blind them to the presence—or lack thereof—of diversity among their employees.

Finally, we agree with Van Dijk et al. (2012) that diversity research would benefit from more carefully considering what “performance” in a given research context means. Disaggregating performance outcomes in terms of how they are achieved—in a conjunctive or disjunctive manner—represents a first step in this direction, but there are other relevant distinctions in performance outcomes such as whether performance has social impact or frame-breaking potential. Doing so could improve organizational scholars’ ability to make more consistently precise predictions regarding group diversity and performance—a goal that remains elusive despite years of scholarly attention.

Conclusion

We develop and test a theory of when and why collectivism will help or hurt group outcomes. Specifically, we show that collectivism leads members to see less diversity than actually exists, or blur diversity attributes among members of their group, which improves performance when diversity is disruptive and hurts performance on tasks for which accurate perceptions of diversity are critical. In sum, we provide the foundation for a broad-range theory of how group collectivistic norms can help or harm groups’ abilities to benefit from the diversity within their groups.

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Table 1 – Means, Standard Deviations, and Correlations for Key Variables – Study 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Average age	-													
2. Proportion female	.14**	-												
3. Group size	-.04**	.00	-											
4. Team mean expertness	.19**	-.03*	-.09**	-										
5. Oxygen ratio	.14**	.09**	.13**	.20**	-									
6. Support ratio	.25**	.14**	-.04**	.10**	.53**	-								
7. Commercial expedition	.29**	.11**	.18**	.05**	.24**	.24**	-							
8. Collectivism	-.14**	-.07**	.03*	.02	.03*	.03*	-.31**	-						
9. Objective national diversity	.15**	.09**	.16**	.14**	.19**	.13**	.47**	-.31**	-					
10. Objective expertness diversity	.10**	.06**	.34**	-.09**	.04**	.00	.23**	.16**	-.06**	-				
11. Collectivism × Objective national diversity	.02	.03	-.06**	-.06**	-.18**	-.16**	-.21**	-.33**	-.08**	-.24**	-			
12. Collectivism × Objective expertness diversity	-.05**	.00	.03*	-.03	-.04*	-.05**	-.13**	-.07**	.05**	-.01	.12**	-		
13. Summit ratio	.07	.08**	-.03**	.10**	.31**	.27**	.17**	.10**	-.01	.00	-.06**	-.04**	-	
14. Climber safety	.08**	.06**	-.12**	.02	.00	.04**	.05**	.02	-.05**	-.07**	.01	-.04**	.09**	-
<i>M</i>	37.16	0.10	7.45	0.41	0.14	0.22	0.20	0.30	0.17	1.31	-1.60	-1.15	0.32	0.07
<i>SD</i>	7.14	0.15	4.81	0.32	0.29	0.31	0.40	0.21	0.25	0.93	4.30	19.66	0.35	0.25

* $p < .05$, ** $p < .01$. $n = 5,214$.

Table 2 – Estimates of National and Expertness Diversity on Summitting Success and Climber Safety – Study 1

Variables	(1) Summitting Success	(2) Summitting Success	(3) Summitting Success	(4) Climber Safety	(5) Climber Safety	(6) Climber Safety
Average age	-0.006** (0.001)	-0.005** (0.001)	-0.005** (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
Proportion female	-0.032 (0.029)	-0.026 (0.029)	-0.031 (0.029)	0.039 † (0.020)	0.037 † (0.020)	0.038 † (0.020)
Group size	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.005** (0.001)	-0.004** (0.001)	-0.004** (0.001)
Team mean expertness	0.131** (0.016)	0.126** (0.016)	0.126** (0.016)	0.013 (0.012)	0.011 (0.012)	0.011 (0.012)
Oxygen ratio	0.501** (0.021)	0.498** (0.021)	0.501** (0.021)	-0.006 (0.017)	-0.005 (0.017)	-0.007 (0.017)
Support ratio	0.168** (0.018)	0.160** (0.019)	0.164** (0.019)	0.016 (0.013)	0.019 (0.013)	0.018 (0.013)
Commercial expedition	0.009 (0.012)	0.021 (0.013)	0.027* (0.013)	0.013 (0.008)	0.009 (0.010)	0.005 (0.010)
Collectivism		0.089** (0.022)	0.118** (0.024)		-0.050** (0.019)	-0.056** (0.020)
Objective national diversity		0.023 (0.020)	0.049* (0.022)		-0.006 (0.017)	-0.011 (0.019)
Objective expertness diversity		-0.007 (0.005)	-0.006 (0.005)		-0.010* (0.005)	-0.010* (0.005)
Collectivism × Objective national diversity			0.376** (0.114)			-0.053 (0.095)
Collectivism × Objective expertness diversity			-0.007 (0.020)			-0.041* (0.019)
Observations	5214	5214	5214	5214	5214	5214
Adjusted R ²	0.318	0.320	0.321	0.050	0.052	0.053

Robust standard errors in parentheses

† $p < .10$, * $p < .05$, ** $p < .01$ **Table 3** – Means, Standard Deviations, and Correlations for Key Variables – Study 2

Variable	1	2	3	4
1. Perceived national diversity	-			
2. Perceived expertness diversity	.05	-		
3. Conjunctive task performance	-.11*	.04	-	
4. Disjunctive task performance	-.02	.11*	-.02	-
<i>M</i>	0.62	0.81	0.56	0.20
<i>SD</i>	0.28	0.27	0.17	1.13

* $p < .05$, ** $p < .01$. $n = 366$ groups.

Table 4 – Effects of Collectivism and Objective Diversity on Perceived Diversity, and Conjunctive Task (Oxygen Allocation) and Disjunctive Task (Route Selection) Performance – Study 2

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Perceived National Diversity	Perceived Expertness Diversity	Conjunctive Task Performance	Conjunctive Task Performance	Conjunctive Task Performance	Disjunctive Task Performance	Disjunctive Task Performance	Disjunctive Task Performance
Collectivism Manipulation	-0.073 (0.014)	-0.117* (0.013)	0.101 † (0.009)	0.101 † (0.009)	0.089 † (0.009)	0.063 (0.059)	0.063 (0.059)	0.071 (0.059)
Objective National Diversity Manipulation	-0.352*** (0.017)	0.004 (0.016)	-0.069 (0.011)	-0.067 (0.011)	-0.113 † (0.012)	-0.120 (0.072)	-0.121* (0.072)	-0.140* (0.076)
Objective Expertness Diversity Manipulation	-0.021 (0.017)	-0.366*** (0.016)	-0.027 (0.011)	-0.026 (0.011)	-0.038 (0.012)	-0.174** (0.072)	-0.173** (0.072)	-0.136* (0.076)
Collectivism Manipulation × Objective National Diversity Manipulation	-0.173** (0.017)	0.007 (0.016)		-0.007 (0.011)	-0.029 (0.011)		-0.022 (0.072)	-0.032 (0.073)
Collectivism Manipulation × Objective Expertness Diversity Manipulation	-0.021 (0.017)	-0.131* (0.016)		-0.082 (0.011)	-0.088 (0.011)		0.034 (0.072)	0.047 (0.072)
Perceived National Diversity					-0.132* (0.035)			-0.054 (0.227)
Perceived Expertness Diversity					-0.023 (0.037)			0.106 † (0.143)
Observations	366	366	366	366	366	366	366	366
Adjusted R	0.15	0.15	0.01	0.01	0.02	0.02	0.03	0.03

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 1A: Effects of Collectivism on Summitting Success in Nationally Diverse Groups – Study 1

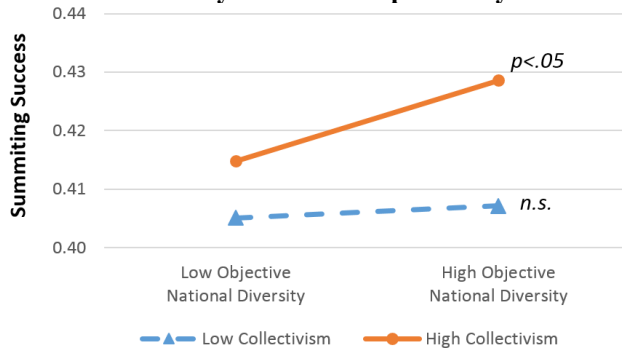


Figure 1B: Effects of Collectivism on Climber Safety in Expertness-Diverse Groups – Study 1

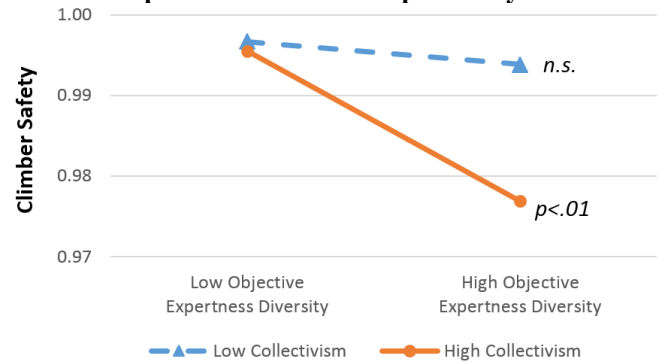


Figure 2A: Effects of Collectivism on Perceived National Diversity – Study 2

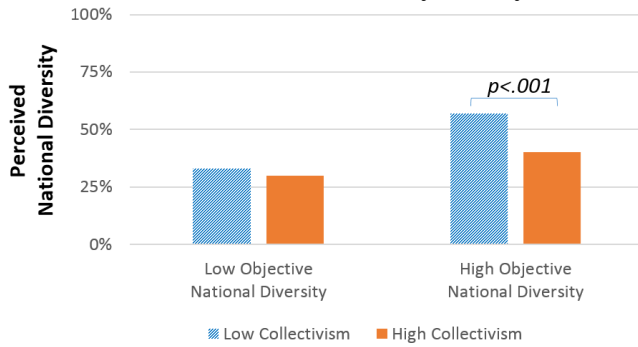


Figure 2B: Effects of Collectivism on Perceived Expertness Diversity – Study 2

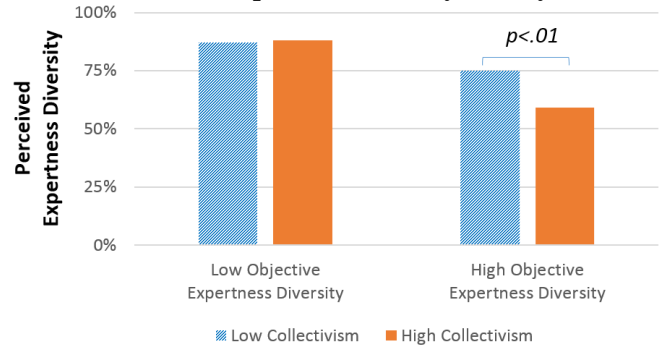
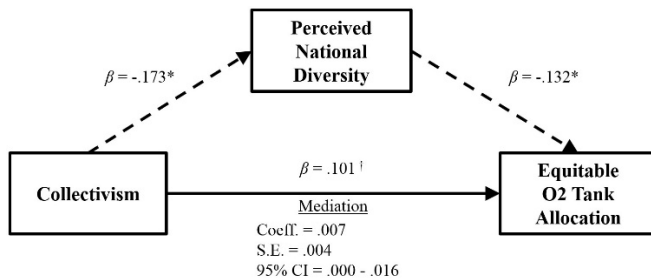
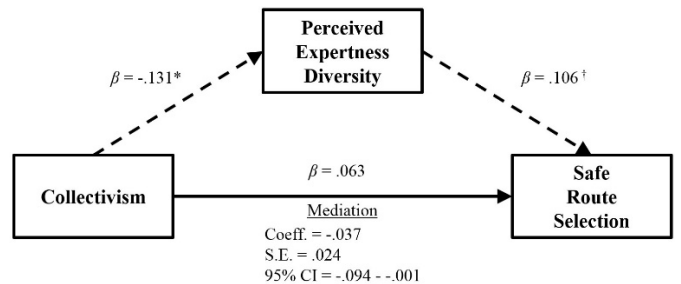


Figure 3A: Effects of Collectivism on Conjunctive Task Performance in Nationally Diverse Groups – Study 2



Mediation determined using Hayes macro with 5,000 bootstrapped iterations.
 $^\dagger p < .10$, $^* p < .05$, $^{**} p < .01$

Figure 3B: Effects of Collectivism on Disjunctive Task Performance in Expertness-Diverse Groups – Study 2



Mediation determined using Hayes macro with 5,000 bootstrapped iterations.
 $^\dagger p < .10$, $^* p < .05$, $^{**} p < .01$, $^{***} p < .001$

Appendix 1: Moon Landing Scenario

1A: Characteristics of Six Conditions

<u>Characteristics</u>	<u>C1</u>	<u>C2</u>	<u>C3</u>	<u>C4</u>	<u>C5</u>	<u>C6</u>
Norms: Individualistic	X	X	X			
Norms: Collectivistic				X	X	X
Nationalities: Homogeneous	X	X		X	X	
Nationalities: Heterogeneous			X			X
Expertness Levels: Homogeneous	X		X	X		X
Expertness Levels: Heterogeneous		X			X	
Subjects in Condition	168	177	186	183	180	174
Groups in Condition	56	59	62	61	60	58

1B: Narrative Description of Group Behavior

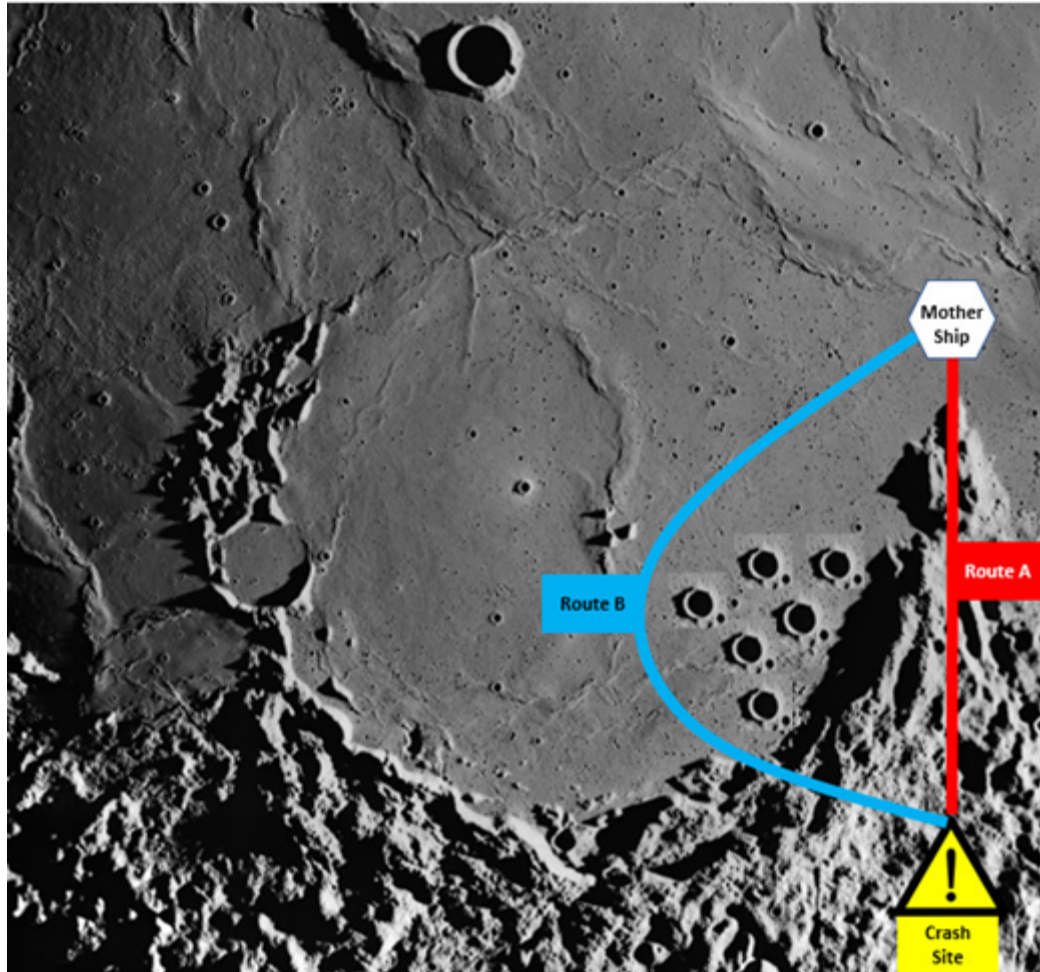
You and your crew mates have been in outer space together for the past five months. The following diary of one of your crew mates reflects how the group has worked together during that time.

COLLECTIVISM CONDITION	INDIVIDUALISM CONDITION
<p>We each have a small cabin in which we can sleep and keep our personal effects (family photos, etc.), but this crew is remarkably communal. On the first day of the mission, we removed the doors from our individual chambers, and brought most of our personal things to the common spaces to share. This is very different from the isolated pods I recall having seen on videos of other expeditions.</p> <p>In this way, it really seems like our group has invested the space vessel with a very collaborative atmosphere. In the common space, there is a large wall with clips holding various types of freeze-dried food – oh, the delights of astronaut cuisine! We not only eat meals together, but we eat the same thing as each other so we have a more shared experience. (We rotate the task of “preparing meals for the crew.”)</p> <p>On days when the weather outside the vessel has been particularly bad such that visibility is low, group zero-gravity hacky-sack and blackjack have become regular pastimes. Every day it seems we have some group activity going on. It seems life on the space vessel is not so different from life at home on earth.</p>	<p>We each have a small cabin in which we can sleep and keep our personal effects (family photos, etc.), and these spaces go a long way to help us retain a sense of individuality. On the first day of the mission, we briefly opened the doors to our individual chambers and showed each other our personal things as a “getting-to-know-you tour,” but I haven’t seen my crewmates’ space since then as we typically keep our cabin doors closed. This is very different from the more communal atmosphere I recall having seen on videos of other expeditions.</p> <p>In this way, it really seems like our group has invested certain areas of the space vessel with a very private atmosphere. In the common space, there is a large wall with small lockers holding various types of freeze-dried food – oh, the delights of astronaut cuisine! We appear to have different appetites and cuisine preferences, so we tend to eat separately and eat different things. (At least preparing a meal for myself is not a complicated task!)</p> <p>On days when the weather outside the vessel has been particularly bad such that visibility is low, I retreat to my chamber where reading and playing solitaire have quickly become my pastimes. Every day I find time to meditate and reflect on the day’s experiences and my observations about space and the other crewmates. It seems life on the space vessel is not so different from life at home on earth.</p>

1C: Disjunctive Task for Subjects

Route Selection

Your space vessel landed approximately 200 miles from the rendezvous point. You no longer have a view of the terrain, but you caught a quick glimpse as you were landing. It appeared that there were two primary routes to the mother ship, as shown below.



Route A was more direct but there was a series of extremely steep mountainous ridges in the terrain along the way that your crew is uncertain about. Route B was quite a bit longer but was comparatively flat with no signs of obstruction in the terrain.